



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/539,089

12/14/2005

Tomi Veikonheimo

034382-004

9066

21839 7590 01/29/2009  
BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER

VENNE, DANIEL V

ART UNIT

PAPER NUMBER

3617

NOTIFICATION DATE

DELIVERY MODE

01/29/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

|                              |                                      |   |  |
|------------------------------|--------------------------------------|---|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/539,089 | <b>Applicant(s)</b><br>VEIKONHEIMO ET AL. |  |
|                              | <b>Examiner</b><br>DANIEL V. VENNE   | <b>Art Unit</b><br>3617                   |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/8/2009 has been entered.

2. Claims 1, 4-8, 11, 12 and 14 are amended.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Varis (WO 0154971 A1), in view of Parsons (GB 9792/NO 10907; with these two references presenting the same disclosure, as indicated in the previous office action), and further in view of Akimoff (SE 61072). Varis discloses an arrangement in a counter rotating propulsion system (similar to the arrangement in Fig. 1 of applicant's disclosure that applicant indicates is "realized" with counter rotating propellers (CRP), see page 5 of applicant's specification), comprising an aft propeller installed on a thruster [4] rotatable about a vertical axis, and a forward propeller [3] installed on a shaft [2] or on a thruster, whereby the aft propeller and the forward propeller have opposite directions of

Art Unit: 3617

rotation and the aft and forward propellers are arranged opposing each other, each of the propellers having a hub with a cap, the hub and cap associated with the forward and aft propellers are arranged opposing each other. Varis does not disclose the at least two equally distributed flow plates arranged on the cap of the forward propeller radially projecting from the cap, and the flow plates link up to each other and extend beyond an aft facing end of the cap. Parsons discloses a propeller hub (boss) cap (cone) (Figs. 3-4) comprising a plurality of equally spaced flow plates (blades or vanes) [v] projecting from the cap in a radial direction with no inclination and without extending beyond the diameter of the cap for reducing cavitation effects and enhancing flow characteristics. Parsons is considered to disclose the limitations of claims 2-6, 10, 13 and 14 based on Figs. 5-6. Regarding claims 7 and 8, Parsons discloses the flow plates attached to the hub cap but does disclose the method of attachment, whether integral (integrated) or fixed to the cap by welding or bolts; however, it would have been obvious to one of ordinary skill in the art to make the flow plates integrated with the hub cap for ease of manufacture and assembly, and it would have also been obvious to one of ordinary skill in the art to affix the flow plates to the hub cap using any known means such as welding or bolts as a mere design choice depending on material selection and the structural characteristics desired for the attachment means. Parsons also indicates (see second to last paragraph of specification, lines 40-42) that one beneficial result of the plates (vanes or blades) about the hub cap (cone) is that water more easily closes in and presses (imparts pressure) on the cap (cone abaft the propeller boss), thus imparting additional forward thrust to the shaft; an extension of the vanes or blades beyond an aft

Art Unit: 3617

facing end of the cap would enhance this beneficial result by allowing water to even more effectively close in and press on the cap to impart pressure and additional forward thrust to the shaft. Akimoff discloses flow plates [17] that link up to each other and extend beyond an aft facing end of a propeller hub cap [13] (see Figs. 3 and 4) which provides a streamlined flow plate configuration to guide water flow aft of the propeller hub cap. In view of the foregoing, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to provide a propeller cap with flow plates as taught by Parsons for the forward propeller hub of Varis that would also have the flow plates linking up to each other and extending beyond an aft facing end of the hub cap as disclosed by Akimoff, to create the invention as claimed by applicant. The rationale would have been to reduce or minimize cavitation effects and provide for streamlined flow of water past the hub cap. Making the flow plates of the forward propeller hub cap of Varis in view of Parsons link up to each other and extend beyond an aft facing end of the cap as disclosed by Akimoff would provide a more streamlined water flow arrangement as well as provide the expected result of allowing water to more effectively close in and press on the cap to impart pressure and additional forward thrust to the shaft of the forward propeller. The extent to which the flow plates link up to each other can be considered a design choice depending on the amount of streamlined flow and anti-cavitation characteristics desired for the CRP arrangement. Although the references alone or in combination do not explicitly disclose that the flow plates are constructed and arranged to eliminate cavitation in the separation zone or the space between the forward and aft propellers

Art Unit: 3617

when the aft propeller is not co-axial with the forward propeller; the combination of references is considered to disclose all claimed structural features and limitations recited by the applicant and the structural features and limitations disclosed are considered capable of such function since such a combination would eliminate (at least in part) cavitation effects in the space between the forward and aft propeller when the forward and aft propellers are arranged as to not be exactly co-axial with each other.

### ***Response to Arguments***

5. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection presented above in this office action.

6. The declaration submitted under 37 CFR 1.132 filed on 12/8/2008 has been considered and is considered insufficient to overcome the rejection of claims 1-14 based upon 35 U.S.C. 103(a) as set forth above because the prior art references cited in combination are considered to disclose the claimed features of applicant's invention.

### ***Conclusion***

7. The prior art cited and not relied upon is considered pertinent to applicant's disclosure. Korhonen et al. (US 7442100 B2) discloses counter rotating propellers; this reference is cited on the attached list of references cited by examiner, all other references cited in this office action for the rejection provided above have been previously cited in the art of record for this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel V. Venne whose telephone number is (571) 272-7947. The examiner can normally be reached between 7:30AM - 4:00PM. If attempts

Art Unit: 3617

to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samuel J. Morano can be reached on (571) 272-6684. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Daniel V. Venne/

1/22/2009

Examiner, Art Unit 3617